Options Greeks: The Vega

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General

- Vega is the measurement of an option's sensitivity to changes in the volatility of the underlying asset.
- Vega represents the amount that an option contract's price changes in reaction to a 1% change in the volatility of the underlying asset.
- Vega changes when there are large price movements (increased volatility) in the underlying asset, and falls as the option approaches expiration.
- In simple terms, vega measures the risk of gain or loss resulting from changes in volatility.

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Negative vs. positive Vega

- Vega for all options is always a positive number because options increase in value when volatility increases and decrease in value when volatility declines.

- However, when position Vegas are generated, positive and negative signs appear.

- When you establish a position selling or buying an option, this will result in either a negative sign (for selling) or positive sign (for buying), and the position Vega will depend on net Vegas.

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VEGA CHANGES

- Vega is higher on options that have more distant expiration dates.
- Options tend to be more expensive when volatility is higher.
- Thus, whenever volatility goes up, the price of the option goes up and when volatility drops, the price of the option will also fall.

Vega Risk

- Vega is one of the most important risk metrics an option trader relies upon.

- It is used to estimate the portfolio's overall sensitivity to changes in implied volatility, one of the largest risks the option traders faces.

- For example, a trader with $1 million of vega knows he will make or lose $1m dollars for every 1% change in implied volatility.

- Often, a decline in IV (also known as vega risk) will offset the impact of price gains in the underlying stock.

Vega Impact On Options Strategies

- Short premium positions like Iron Condors or Butterflies will be negatively impacted by an increase in implied volatility, which generally occurs with downside market moves.
- Start vega negative positions with a slightly short delta bias and vega positive positions with long delta bias.
- Use vega positive strategies like calendars when IV is low and vega negative strategies like Iron Condors when IV is high.

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List of vega positive strategies

- Long Call
- Long Put
- Long Straddle
- Long Strangle
- Long Calendar Spread
- Vertical Debit Spread

LIST OF VEGA NEGATIVE STRATEGIES

- Short Call
- Short Put
- Short Straddle
- Short Strangle
- Vertical Credit Spread
- Covered Call Write
- Covered Put Write
- Iron Condor
- Butterfly